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force. A piece of lead put *alone* into the solution of sulphuret of potassium, has its surface converted into sulphuret of lead, the proof thus being obtained,, even when the current cannot be formed, that there is a force (chemical) present and active under such circumstances; and such force can produce a current of chemical force when the circuit form is given to the arrangement. The force at the place of excitement shows itself, both by the formation of sulphuret of lead and the production of a current. In proportion as the formation of the one decreases the production of the other diminishes, though all the bodies produced are conductors, and contact still remains to perform any work or cause any effect to which it is competent. 876. It may perhaps be said that the current is due to the contact between the solution of sulphuret and the lead (or tin, as the case may be), which occurs at the beginning of the ex-

sulpha, pot.,*

Fig. 67.

periment; and that when the action ceases, it is because a new body, the sulphuret of lead, is introduced into the circuit, the various contacts being then balanced in their force. This would be to fall back upon the assumption before resisted, namely, that the solution may class with metals and such like bodies, giving balanced effects of contact in relation to some of these bodies, as in this case, to the sulphuret of lead produced, but not with *others*, as the lead itself; both the lead and its sulphuret being in the same category as the metals generally (797; 858).

877. The utter improbability of this as a natural effect, and the absence of all experimental proof in support of it, have been already stated (849, 859), but one or two additional reasons against it now arise. The state of thing may perhaps be made clearer by a diagram or two, in which assumed contact forces may be assigned, in the absence of all experimental expression, without injury to the reasoning. Let fig. 67 represent the electromotive forces of a circle of platinum, iron,

and solution
of sulphuret of potassium; or platinum, nickel,
and solution
of sulphuret; cases in which the forces are,
according to the